

6CD6-GA—25CD6-GB

BEAM PENTODE

FOR TV HORIZONTAL-DEFLECTION AMPLIFIER APPLICATIONS

DESCRIPTION AND RATING

The 6CD6-GA is a beam-power pentode designed primarily for use as the horizontal-deflection amplifier in television receivers which incorporate large-deflection-angle picture tubes. Features of the tube include an extremely high perveance, high plate current at low plate and screen voltages, and a high ratio of plate to screen current. The 6CD6-GA may be used as a replacement for the 6CD6-G; it differs from the 6CD6-G by employing a straight-sided T-12 envelope and incorporating increased maximum ratings for plate dissipation, pulse plate voltage, and bulb temperature.

Except for heater ratings, the 25CD6-GB is identical to the 6CD6-GA. In addition, as a result of its controlled heater warm-up characteristic, the 25CD6-GB is especially suited for use in television receivers which employ series-connected heaters. When the 25CD6-GB is used in conjunction with other 600-milliampere types which exhibit essentially the same heater warm-up characteristic, heater voltage surges across the individual tubes are minimized during the warm-up period.

GENERAL

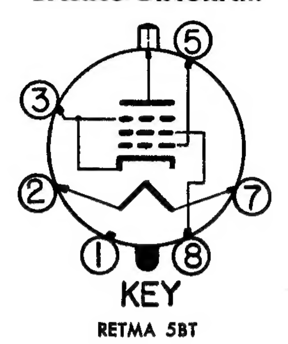
ELECTRICAL

	6CD6-GA	25CD6-GB	
Cathode—Coated Unipotential			
Heater Voltage, AC or DC	6.3	25.0	Volts
Heater Current	2.5	0.6	Amperes
Heater Warm-up Time*	..	11	Seconds

Direct Interelectrode Capacitances, approximate†

Grid-Number 1 to Plate	1.1	μμf
Input	22	μμf
Output	8.5	μμf

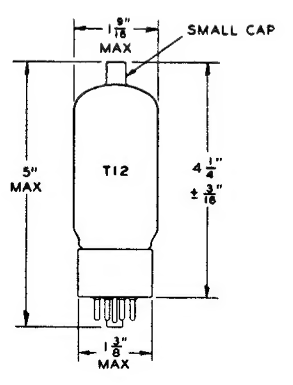
BASING DIAGRAM



TERMINAL CONNECTIONS

Pin 1—No Connection
Pin 2—Heater
Pin 3—Cathode and Beam Plates
Pin 4—No Connection
Pin 5—Grid Number 1
Pin 6—No Connection
Pin 7—Heater
Pin 8—Grid Number 2 (Screen)
Cap —Plate

PHYSICAL DIMENSIONS



MECHANICAL

Mounting Position—Vertical‡
Envelope—T-12, Glass
Base—B8-110, Short Medium-Shell Octal 8-Pin
Top Cap—C1-1, Small

MAXIMUM RATINGS

HORIZONTAL-DEFELECTION AMPLIFIER SERVICE§
DESIGN-CENTER VALUES UNLESS OTHERWISE INDICATED

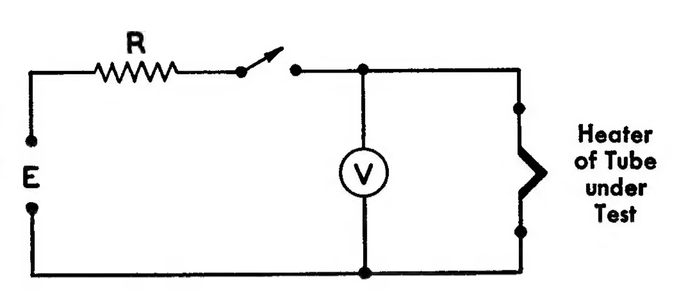
DC Plate-Supply Voltage (Boost + DC Power Supply)	700	Volts
Peak Positive Pulse Plate Voltage	7000▲	Volts
Peak Negative Pulse Plate Voltage	1500	Volts
Screen Voltage	175	Volts
Peak Negative Grid-Number 1 Voltage	200	Volts
Plate Dissipationπ	20	Watts
Screen Dissipation	3.0	Watts
DC Cathode Current	200	Milliamperes
Peak Cathode Current	700	Milliamperes
Heater-Cathode Voltage		
Heater Positive with Respect to Cathode		
DC Component	100	Volts
Total DC and Peak	200	Volts
Heater Negative with Respect to Cathode		
Total DC and Peak	200	Volts
Grid-Number 1 Circuit Resistance	0.47	Megohms
Bulb Temperature at Hottest Point	225	C

CHARACTERISTICS AND TYPICAL OPERATION

AVERAGE CHARACTERISTICS

Plate Voltage	60	175	Volts
Screen	100	175	Volts
Grid-Number 1 Voltage	0♦	−30	Volts
Plate Resistance, approximate	...	7200	Ohms
Transconductance	...	7700	Micromhos
Plate Current	230	75	Milliamperes
Screen Current	21	5.5	Milliamperes
Grid-Number 1 Voltage, approximate			
I_b = 1.0 Milliampere	...	−55	Volts
Triode Amplification Factor #	...	3.9	

* Heater warm-up time is defined as the time required in the circuit shown at the right for the voltage across the heater terminals to increase from zero to the heater test voltage (V_1). For this type, E = 100 volts (RMS or DC), V_1 = 20.0 volts (RMS or DC), and R = 126 ohms.



† Without external shield.

‡ Horizontal operation is permitted if pins 2 and 7 are in a vertical plane.

§ For operation in a 525-line, 30-frame television system as described in "Standards of Good Engineering Practice Concerning Television Broadcast Stations," Federal Communications Commission. The duty cycle of the voltage pulse must not exceed 15 percent of one scanning cycle.

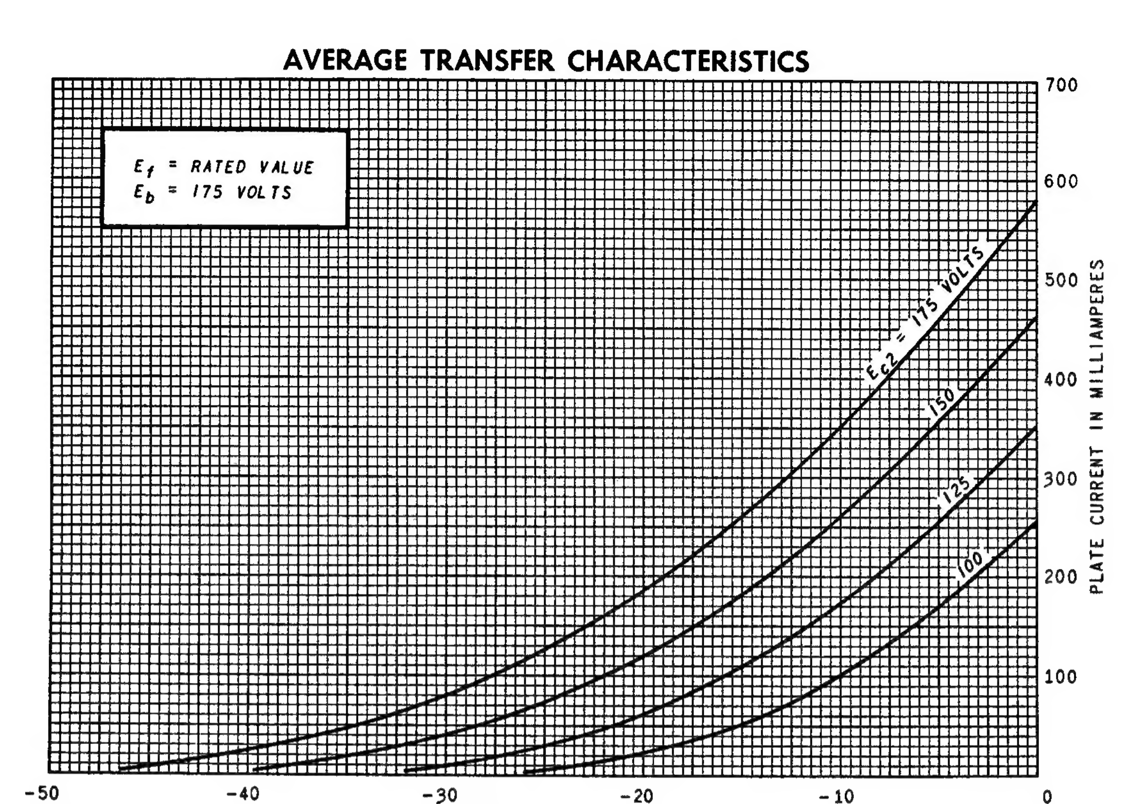
▲ Value given is to be considered as an Absolute Maximum Rating. In this case, the combined effect of supply voltage variation, manufacturing variation including components in the equipment, and adjustment of equipment controls should not cause the rated value to be exceeded.

π In stages operating with grid-leak bias, an adequate cathode-bias resistor or other suitable means is required to protect the tube in absence of excitation.

◆ Applied for very short interval so as not to damage tube.

Triode connection (screen tied to plate) with Eb = Ec2 = 175 volts and Ec1 = −30 volts.

AVERAGE TRANSFER CHARACTERISTICS



AVERAGE TRANSFER CHARACTERISTICS

E_f = RATED VALUE
E_b = 175 VOLTS
E_{c2} = 175 VOLTS
150
125
100
35
30
25
20
15
10
5
0
SCREEN CURRENT IN MILLIAMPERES
-50
-40
-30
-20
-10
GRID NUMBER 1 VOLTAGE IN VOLTS

AVERAGE PLATE CHARACTERISTICS

E_f = RATED VALUE
E_{c2} = 175 VOLTS

I_b @ E_{c1} = 0 VOLTS
-5.0
-10
-15
-20
-30
-40
I_{c2} @ E_{c1} = 0 VOLTS
-15
-30

PLATE CURRENT (I_b) IN MILLIAMPERES
SCREEN CURRENT (I_{c2}) IN MILLIAMPERES
PLATE VOLTAGE IN VOLTS

AVERAGE PLATE CHARACTERISTICS

